



WASHINGTON STATE PATROL (WSP) PUBLIC RECORD for SMDs

CERTIFICATION CONCERNING DESIGN AND CONSTRUCTION OF ELECTRONIC SPEED MEASURING DEVICES OR LASER SPEED MEASURING DEVICES



I, **Anthony Hillock**, do certify under penalty of perjury under the laws of the State of Washington that the following is true and correct: Date 2-16-2016 Location Tumwater Signature Anthony Hillock

I am employed with the WSP as an Electronic Design Engineer, Speed Measuring Device (SMD) Expert, and assigned as a custodian of the SMD-Certification Management (CM) records. I am personally familiar with the WSP SMD manuals and how each of the WSP SMDs are designed and operated. I have been employed in such a capacity since January 2010. I have been authorized to testify as an Expert on behalf of the WSP SMD program. Part of my duties include, supervising the maintenance and repair of all types of electronic and laser SMDs used by the Washington State Patrol.

I have the following qualifications with respect to SMDs:

Education	Experience
Aerial Speed Detection systems, by Churchill Navigation 2014	WSP Electronic Design Engineer SMD department 2010 -
Applied Concepts 2012	Senior System Technician with Day Wireless working with SMDs for counties and cities in the Northwest 2002 - 2010
WSP Speed Measuring Course for Radar and Lidar at the Washington State Patrol Training Division, Shelton Washington 2010	Metrologist with Verizon working on electronic test equipment including SMDs 1997 - 2002
Laser Technologies Incorporated 2009	McDonnell Douglas calibrating and repairing test measurement and diagnostic equipment including aircraft radar test equipment and police SMDs 1985 - 1996
Kustom Signals 2003	Military experience as a precision measurement equipment specialist 1979 - 1985
MPH industries 1999	
USAF Precision Measurement Equipment 1979	Have FCC General Radiotelephone Operator License (GROL)

The following describes the established WSP Speed Measuring Device program conducted per WSP Standard Operating Procedure, directed by the SMD Expert Anthony Hillock with qualifications listed on previous table.

The Washington State Patrol currently uses the following types of SMDs:

Type	Manufacture	Model
Radar	Kustom Signals	Falcon HR, Falcon, Trooper
Radar	Decatur Electronics	Genesis I, Genesis II, GHS, VPD
Radar	Applied Concepts	Stalker DSR, DSR II
Radar	MPH Industries	BEE III
Lidar	Kustom Signals	PRO Laser II, III, IV
Lidar	Laser Technologies Inc.	LTI 20-20, UltraLyte, TruSpeed LR, TruSpeed S
Aerial	Churchill Navigation	Augmented Reality System
Aerial	Rebco	Robic SC-808

The Washington State Patrol maintains manuals for all of the above stated SMDs. I am personally familiar with these manuals and how each of the SMDs are designed and operated. On the date indicated on the SMD-CM Record, under the direction of an authorized SMD expert the SMD was tested using WSP Standard Operating Procedures. The units were evaluated and certified by a WSP SMD Expert as the Certifying Official to meet or exceed existing performance standards and entered into the WSP SMD-CM data base in the regular course of business. The Washington State Patrol maintains a testing and certification program that requires each SMD to be tested and certified for accuracy at least once every two years.

Radar SMDs utilize the Doppler Effect to measure speed. Testing consists of transmitting selected frequencies from a precision signal generator to simulate various speeds. The SMD must indicate the correct speed ± 1 MPH in the stationary mode and ± 2 MPH in the moving mode (where applicable). The transmit center frequency for the radar unit is verified using appropriate test equipment to be within ± 100 MHz of specification. Tuning forks, used by the operators to perform daily checks, are certified to ensure their accuracy to ± 0.5 percent as specified by the manufacturer. All performance tests are verified.

Lidar SMDs measure speed based on the velocity of light and a precision time base reference. The certification checks are Head Up Display aiming reticle, internal self-test, fixed distance check, delta distance check, reference oscillator check. An operational test is done by comparing the lidar to a certified radar SMD.

Aerial SMDs accurately measure speed based on Geographical Information System (GIS) coordinates and a precision time base reference. Testing consists of internal self-test, timing circuit check, verifying alignment of Augmented Reality System (ARS) to track a GIS coordinate, fixed distance check, delta distance check. An operational road test is done by comparing the ARS to a certified radar SMD. Aerial chronometers are compared to the WWV time standard.

Based upon my education, training, experience, knowledge of the SMD models listed above and review of the relevant Washington State Patrol records created at or near the date of testing, identified on the following page and entered under penalty of perjury, it is my opinion that each of these electronic pieces of equipment is so designed and constructed as to accurately employ GPS tracking or the Doppler effect in such a manner that it will give accurate measurements of the speed of motor vehicles when properly calibrated and operated by a trained operator or, in the case of the laser SMDs, each of these pieces of equipment is so designed and constructed as to accurately employ measurement techniques based on the velocity of light in such a manner that it will give accurate measurements of the speed of motor vehicles when properly calibrated and operated by a trained operator.

Individual Performance Tests and Certification of the tests are entered into the SMD-CM data base in the regular course of business under the penalty of perjury by entering an authorized user ID and password to authenticate it.

See the following page for details concerning the individual SMD certification record.

Public Record Summarized Certificate for WSP Speed Measuring Device R2720

The Washington State Patrol uses the following speed measuring device.

TAG NUMBER	R2720
MANUFACTURER	MPH
MODEL	BEE III
SERIAL NUMBER	BEE109002266
FRONT ANTENNA SERIAL NUMBER	BEN653022071
REAR ANTENNA SERIAL NUMBER	BEN653022072
TUNING FORK 1	MPH: 20.0 SERIAL NUMBER: 393922
TUNING FORK 2	MPH: 50.0 SERIAL NUMBER: 393574
CERTIFYING OFFICIAL	ANTHONY F HILLOCK
LOCATION OF CERTIFICATION	WENATCHEE

**R2720 Passed the Performance Tests and was certified for accuracy on
07/25/2016.**

Individual Performance Tests and Certification of the tests are entered into the SMD-CM data base in the regular course of business. I certify under the penalty of perjury under the laws of the State of Washington that all statements made herein are true and accurate and that I have entered an authorized user ID and password to authenticate it.

I, ANTHONY F HILLOCK, do hereby certify that Stated SMD meets the manufacturer's published specifications and has been certified using WSP Standard Operating Procedures with standards whose accuracies are traceable to the National Institute of Standards and Technology.

**For compliance with IRLJ 6.6 court rules concerning date and
signature, follow the steps below.**

To obtain the full IRLJ 6.6 Design and Construction Certification for Courts:

1. Navigate to the following website: <https://www.wsp.wa.gov/>
2. Select the Driver dropdown menu and click on Speed Measuring Devices.
3. Click on Current IRLJ 6.6 Design and Construction Certification for Courts.
4. Click on View File to download the complete form.